CLAIMS

1. (Previously Presented) A router system configured for distributing information packets from multiple sources to multiple destinations within a network, said router system comprising:

a plurality of input and output facility interface circuit cards;

a plurality of line cards different from said facility interface circuit cards, said line cards being configured to perform packet forwarding functions; and

wherein each of said facility interface circuit cards is connected to one and only one said line card.

2. (Previously Presented) The router system of claim 1 wherein a redundant pair of said facility interface circuit cards is connected in parallel to each said line card, such that one and only one said line card is connected to each of said paired redundant interface circuit cards.

3. (Original) The router system of claim 2 wherein said paired redundant interface circuit cards are configured to operate in a one-for-one protection mode.

4. (Original) The router system of claim 1, further comprising a control processor located on said line card, wherein said control processor is configured to control functions of said line card and of said facility interface circuit card connected to said line card.

5. (Previously Presented) A communication network comprising a first router system, said first router system comprising:

a plurality of input and output interface ports, each of said input and output interface ports comprising two paired duplicate interface circuit cards;

a line card different from said interface circuit card, said line card being configured to perform packet forwarding functions; and

wherein said paired duplicate interface circuit cards are each connected in parallel with one and only one said line card, such that one and only one said line card is connected to each of said paired duplicate interface circuit cards.

6. (Original) The communication network of claim 5 wherein said first router system is disposed in a folded configuration, such that each of said paired duplicate interface circuit cards contains duplex input and output interface ports.

7. (Original) The communication network of claim 5 wherein said first router system is disposed in a folded configuration, such that each of said line cards is configured to perform both input and output packet forwarding functions.

8. (Original) The communication network of claim 5 wherein said first router system comprises 320 input interface ports and 320 output interface ports.

9. (Original) The communication network of claim 5 further comprising a second router system, said second router system comprising:

a plurality of input and output interface ports, each of said input and output interface ports comprising two paired duplicate interface circuit cards;

a line card different from said interface circuit card, said line card being configured to perform packet forwarding functions;

wherein said paired duplicate interface circuit cards are each connected in parallel with one said line card, such that one said line card is connected to each of said paired duplicate interface circuit cards; and

said second router system being interconnected with said first router system through duplicate data paths, such that each of said paired duplicate interface circuit cards of said first router system is interconnected to one of said paired duplicate interface circuit cards of said second router system through one of said duplicate data paths.

10. (Original) The communication network of claim 9 wherein each of said duplicate data paths is configured to carry duplex data between said first and said second router systems.

11. (Original) The communication network of claim 5 wherein said first router system further comprises an optical switch having an N by M crossbar configuration, said optical switch being located within the core of the router system and having a plurality of ingress ports and a plurality of egress ports, wherein N is the integer number of ingress ports and M is the integer number of egress ports of said optical switch.

12. (Original) The communication network of claim 11 wherein N is equal to M.

13. (Original) The communication network of claim 11 wherein N is not equal to M.

14. (Original) The communication network of claim 12 wherein N is greater than 10.

15. (Original) The communication network of claim 14 wherein N is greater than 40.

16 (Original) The communication network of claim 15 wherein N is greater than 60.

17. (Original) The communication network of claim 13 wherein N and M are each greater than 10.

18. (Original) The communication network of claim 17 wherein N and M are each greater than 40.

19. (Original) The communication network of claim 18 wherein N and M are each greater than 60.

20. (Original) The communication network of claim 11 wherein said first router system further comprises a plurality of said optical switches.

21. (Original) The communication network of claim 9 wherein each of said duplicate data paths comprises an optical fiber.

22. (Original) The communication network of claim 21 wherein each of said duplicate data paths comprises duplex optical fibers.

23. (Previously Presented) A method of distributing data streams within a communication system containing a plurality of router systems, said method comprising:

receiving duplicate data streams at two paired duplicate interface circuit cards of a first router system;

delivering said duplicate data streams from said two paired duplicate interface circuit cards to one and only one line card separate from said two paired duplicate interface circuit cards;

examining said duplicate data streams in accordance with predetermined selection criteria; and

if one said duplicate data stream satisfies said criteria and the second said duplicate data stream does not satisfy said criteria, then selecting said duplicate data stream that satisfies said criteria and discarding said duplicate data stream that does not satisfy said criteria; and

if both of said duplicate data streams satisfy said criteria, then arbitrarily selecting one of said duplicate data streams and arbitrarily discarding the non-selected duplicate data stream.

24. (Original) The method of claim 23 wherein said duplicate data streams are received through redundant data paths from a second router system within said communication system.

25. (Original) The method of claim 23 wherein said predetermined selection criteria include criteria selected from the group consisting of a SONET standard, a packet-over-SONET protocol, and an ETHERNET protocol.

26. (Original) The method of claim 23 wherein said examining, said selecting, and said discarding are performed at said line card.

27. (Original) The method of claim 23 , further comprising performing packet forwarding functions.

28. (Original) The method of claim 27 wherein said packet forwarding functions are performed at said line card.

29. (Original) The method of claim 23 wherein said distribution of data streams is not interrupted by an occurrence selected from the group consisting of malfunction, failure, removal, and replacement of one of said two paired duplicate interface circuit cards.

30. (Original) The method of claim 23 wherein said received data streams comprise information packets encapsulated into frames.

31. (Original) The method of claim 30, further comprising extracting said information packets from said frames after receiving said data packets and before delivering said data packets to said line card.

32. (Original) The method of claim 24 wherein said redundant data paths comprise optical fibers.

33. (Original) The method of claim 32 wherein said redundant data paths comprise duplex optical fibers.

34. (Original) The method of claim 24 wherein routing addresses across said communication network are not changed by an occurrence within said first router system selected from the group consisting of malfunction, failure, removal, and replacement of one of said two paired duplicate interface circuit cards, such that data rerouting and route-flap are prevented in said second router system and are not broadcast in part or as a whole across said communication network.

35. (Original) The method of claim 24 wherein an occurrence of a failure within said data paths interconnecting said first router system with said second router system is detected and corrected independently by each of said first router system and said second router system, such that control communication between said first router system and said second router system is not required.